

# “These Are the Only Four Seas”

## *The World Map of Bologna, University Library, Codex 3632*

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Bologna, University Library, codex 3632 (hereafter Bon. 3632) is relatively well known to historians of Byzantine medicine and magic for its rich content in these fields.<sup>1</sup> This fifteenth-century paper manuscript of 475 folios (296 × 219 mm), dated ca. 1440, was copied or commissioned by John, (son?) of Aron, a physician of Constantinople.<sup>2</sup> The content of the manuscript reflects its owner's occupation and was likely chosen for its practical use in the medical field. The codex reproduces mostly a range of excerpts from classical and Byzantine medical works (e.g., works by

Hippocrates, Galen, and Aetius of Amida), as well as a variety of texts on astronomy, astrology, divination, and magic, all forms of knowledge then associated with the medical profession.<sup>3</sup> The phonetic spelling throughout the entire codex points to a copyist unfamiliar with the written Greek language, and may suggest someone with little formal education.<sup>4</sup> More exceptional, however, is the number of illustrations, many of which had been inspired by and adapted from prestigious models, like the Vienna Dioscorides (Vienna, Österreichische Nationalbibliothek, codex medicus gr. 1) and the Nicetas codex (Florence, Biblioteca Medicea Laurenziana, codex Plutei gr. 74.07).<sup>5</sup> Blank spaces and uncolored sketches suggest that the manuscript was never

1 About this manuscript and its medical and magical content, see M. Mavroudi, “Introduction,” in *The Occult Sciences in Byzantium*, ed. P. Magdalino and M. Mavroudi (Geneva, 2006), 24–25. Research for this article has been made possible by a Social Science and Humanities Research Council Standard Research Grant n. 410–2009–0242, and an Onassis Foreign Fellowship (2013). I am grateful to Sonja Brentjes, Linda Safran, as well as the two anonymous readers, and the team of Dumbarton Oaks Papers for their valuable comments on previous versions of this article.

2 His name and status appear on several folios (fols. 269v, 327r, 362r, and 441v). Astronomical calculations were made for the years 1446–1460 on fols. 295–96 and 358–59. The manuscript belonged to Demetrios Angelos, whose hand is identifiable in marginal notes (B. Mondrain, “Démétrios Angelos et la médecine: Contribution nouvelle au dossier,” in *Storia della tradizione e edizione dei medici greci, Atti del VI Colloquio Internazionale Paris 12–14 Aprile 2008*, ed. V. Boudon-Millot, A. Garzya, J. Jouanna, and A. R. D'Auria [Naples, 2010], 300). Description in C. McCown, *The Testament of Solomon* (Leipzig, 1922), 21–25; A. Olivieri and N. Festa, “Indice dei codici greci delle Biblioteche Universitaria e comunale di Bologna,” *StItalFCL* 3 (1895): 442–56.

3 F. Marchetti, “Un manoscritto ‘senza pari’: Le illustrazioni chirurgiche e farmacologiche del codice 3632 della Biblioteca Universitaria di Bologna,” in *BUB: Ricerche e cataloghi sui fondi della Biblioteca Universitaria di Bologna* 2 (2010): 42–44.

4 McCown, *Testament*, 21.

5 B. Mondrain, “Les manuscrits grecs de médecine,” in *La médecine grecque antique: Actes du 15e colloque de la villa “Kérylos”*, ed. J. Jouanna and J. Leclan (Paris, 2004), 267–85. See also the work of F. Marchetti, notably, “Un manoscritto,” 41–63, and “Le illustrazioni dei Testi *Sulle Articolazioni* (Περὶ ἄρθρων πραγματεία) di Apollonio di Cizio e *Sulle Fasciature* (Περὶ ἐπιδέσμων) di Sorano di Efeso,” in *La collezione di testi chirurgici di Niceta: Firenze, Biblioteca Medicea Laurenziana, Plut. 74.7; Tradizione medica classica a Bisanzio*, ed. M. Bernabò (Rome, 2010), esp. 83–85; as well as her doctoral dissertation, to which I was not granted access (F. Marchetti, “Le illustrazioni del codice 3632 della Biblioteca Universitaria di Bologna” [PhD diss., Università di Bologna, 2011]).



FIG. 1. Bologna, University Library, codex 3632 (ca. 1440), fol. 336r. Used with permission of the University Library of Bologna

fully completed.<sup>6</sup> The similarities between the handwriting and phonetic spelling of the texts and that of the captions accompanying the illustrations indicate that the scribe was also heavily involved in the iconographic program of the manuscript.<sup>7</sup>

The section of the manuscript that interests me here is a cosmographical text reproduced on folios 334v–339v, particularly its illustrations.<sup>8</sup> This anonymous work briefly discusses the following issues: the nature and structure of the heavens and the sublunar world; the shape, size, and position of the earth in the cosmos; paradise; earthquakes; the four seas; the ocean; clouds; thunder and lightning; comets; and the yearly movements of the sun and the moon in the zodiac.<sup>9</sup> This treatise was relatively successful in the Byzantine world—more than twenty manuscripts have been identified just from the fourteenth to the sixteenth centuries.<sup>10</sup> It circulated in various types of compilations, notably scientific (astronomical, astrological, geponic, and medical) and religious (theological, canonical, and ascetic).<sup>11</sup> The presence of such a work

in a medical compilation like Bon. 3632 is not surprising when one considers that contemporary medical theory strongly tied the structure of the universe (macrocosm) to that of the human body (microcosm).<sup>12</sup> The iatromathematical texts and diagrams on folios 311r and 320v, which link the human body and the zodiacal signs, confirm that such an understanding of humanity was at play in Bon. 3632.<sup>13</sup> Bon. 3632 is the only manuscript in which this anonymous cosmographical text has been illustrated. An astronomical diagram (fig. 1), a miniature of paradise (fig. 2), and a remarkable map of the *oikoumene* will be the focus of this analysis, with specific emphasis on the map (fig. 3).

The astronomical diagram of folio 336 represents nine cosmic spheres: Earth, Moon, Mercury, Venus, Mars, Jupiter, Saturn, the Zodiac (or fixed stars), and the starless sphere (fig. 1). Traces of sketch lines appear beneath the colored diagram, contributing to a confusing rendition of the cosmos. Each planet is identified by a caption and represented both by an astronomical symbol and by the image of a star; twelve stars symbolize the twelve zodiacal signs, which are also identified by a caption. The layout of the planets is problematic, however, as their star symbols, astronomical symbols, and captions do not coincide. Not only do the stars symbolizing the planets go past the sphere of the Zodiac in such a way that Saturn appears in the starless sphere, but the astronomical symbols also place Saturn in the same sphere as the Zodiac. Furthermore, the captions are out of sync with the astronomical symbols after the sphere of the sun. Thus, Mars is captioned as "Sun," Jupiter as "Mars," and Saturn as "Jupiter." Discrepancies between captions and images in other

6 For instance on fol. 426v (Marchetti, "Un manoscritto," 58).

7 M. Bernabò, "Tre recuperi dell' antico: Una introduzione alla collezione di Niceta," in *La collezione di testi chirurgici di Niceta: Firenze, Biblioteca Medicea Laurenziana, Plut. 74.7: Tradizione medica classica a Bisanzio*, ed. M. Bernabò (Rome, 2010), 10–11.

8 The spelling of the title is telling of the scribe's linguistic level: "Περὶ τὰ οὐράνια καὶ τὰ ἐπίγεια ἔργα καὶ στιχία, λέγο δὲ τοῦ οὐρανοῦ καὶ γῆς καὶ ἀστέρων καὶ κωμυτῶν νεφελῶν θαλασσὸν ὑδάτων σημεῖον βροντῶν καὶ πλανήτων καὶ ζωδίων, ἡλίου τε καὶ Σελήνης ἐκλύψεος αὐτόν" (fol. 334v).

9 For a detailed description of these folios, see *Catalogus Codicum Astrologorum Graecorum*, ed. D. Bassi et al., vol. 4 (Brussels, 1903), 39–46.

10 A. Delatte was the first to isolate this work in Byzantine manuscripts ("Un manuel byzantin de cosmologie et de géographie," *Bulletin de la Classe des Lettres de l'Académie Royale de Belgique*, 3e série 18 [1932]: 189–222). Several more copies have been found since then.

11 On the presence of this text in various contexts, see A.-L. Caudano, "Cosmologies et cosmographies varies dans les manuscrits byzantins tardifs," *Byzantion* 85 (2015): 1–25, and "Cosmography, Asceticism, and Female Patronage in Late Byzantine and Slavic Miscellanies," in *Science and Religion in Southeastern Europe* (forthcoming). The earliest dated manuscript is Rome, Biblioteca Vaticana, codex Vaticanus gr. 216, a geponic manuscript dated 1342. The text is reproduced in another geponic manuscript: Berlin, Staatsbibliothek, codex Berolensis 161 (sixteenth century). Other examples of scientific codices include, for astronomy and astrology: Oxford, Bodleian Library, codex Seldenianus Supra 17 (fourteenth–fifteenth century); Paris, Bibliothèque Nationale, codex Parisinus gr.

2419 and 2494 (fifteenth century); Rome, Biblioteca Vaticana, codex Vaticanus Urbinas gr. 76 (fifteenth–sixteenth century); and for medicine, Bon. 3632 (ca. 1440) and Paris, Bibliothèque Nationale, codex Parisinus gr. 2219 (fifteenth century). The text also appears in the following religious codices: Madrid, Real Biblioteca del Monasterio San Lorenzo del Escorial, codex Φ III-11 (fourteenth century); Paris, Bibliothèque Nationale, Coislin 301 (fourteenth century) and Parisinus gr. 1612 (1493); London, British Library Add. 34060 (completed in 1438); Milan, Biblioteca Ambrosiana, Ambrosianus gr. B33 sup. (fifteenth century); Rome, Biblioteca Apostolica Vaticana, Palatinus gr. 364 (fifteenth century); Venice, Biblioteca Marciana, Marcianus gr. III-4 (sixteenth century). This list is not exhaustive.

12 H. Antonopoulos, "Πάντα ατελή, καὶ ἀθλία καὶ ἀχρηστα: Κώδιξ Parisinus graecus 36 (14<sup>ος</sup>–15<sup>ος</sup> αι.), γραφόμενα καὶ ζωγραφόμενα," *Ιόνιος Λόγος* α' (2007): 20–21.

13 Marchetti, "Un manoscritto" (n. 3 above), 51.



FIG. 2. Bologna, University Library, codex 3632 (ca. 1440), fol. 337v. Used with permission of the University Library of Bologna



FIG. 3. Bologna, University Library, codex 3632 (ca. 1440), fol. 338r. Used with permission of the University Library of Bologna

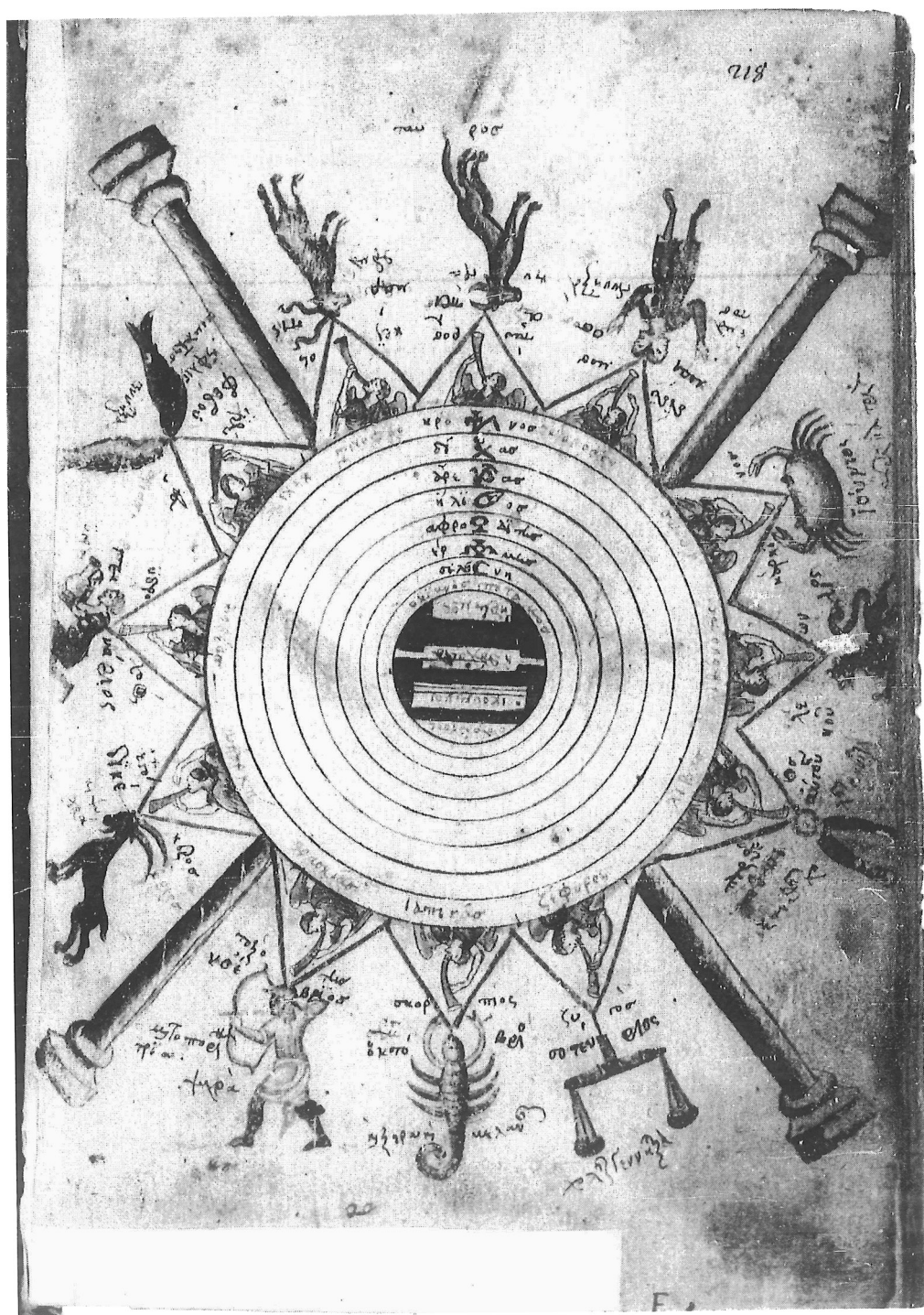


FIG. 4. Paris, Bibliothèque Nationale de France, codex gr. 36 (fourteenth to fifteenth century), fol. 218r. Reproduced with authorization

illustrations of the codex evince the iconographer's hasty work and poor artistic ability.<sup>14</sup> Regardless of its problematic execution, the diagram shows familiarity with classical models of the spherical universe, which appear relatively frequently in Byzantine manuscripts, including in other medical compilations such as the Paris, Bibliothèque Nationale de France, codex gr. 36, fol. 218 (hereafter Par. 36), a manuscript dated between the fourteenth and fifteenth century (fig. 4). In this medical codex, the cosmographical diagram includes, beside the celestial spheres and the zodiac, an indication of the humors and their qualities.

The second illustration of the cosmography reproduces, at the bottom of folio 337v, an image of paradise—a luxuriant, enclosed garden guarded by an angel (fig. 2). The miniature illustrates a passage on paradise copied on the same folio. We shall return to this illustration in greater detail later on. There are strong reasons to believe that the text has been reorganized to accommodate the representation of paradise and the map on facing folios.

The map of folio 338 depicts a curious worldview (fig. 3): within the rectangular wreaths of an uninhabited earth and the river ocean, strips of land float on water like elongated islands. Smaller islands punctuate this topography. Overall, the map lacks specific details: only a few regions and islands are identified. The map's distinct layout is based on a geographical section of the cosmographical text copied on the reverse, folio 338v. This passage presents the curious idea that the river ocean and four great seas form the essential body of the waters of the inhabited earth. According to the author, these are "the only four seas" of the *oikoumene*. No other Byzantine or even Roman map offers such a view of the world.

Three contexts will be analyzed to understand the map's intriguing layout: cartographical, textual, and iconographic. As we shall see, despite its distinctiveness, the Bon. 3632 world map was influenced by other cartographic conventions. Furthermore, the cosmographical text and the geographical sections of folio 338v are indispensable to understanding the map's organization.

14 Marchetti, "Un manoscritto," 58. For instance the illustration of fol. 378v is modeled on the famous miniature of Julia Anicia in the Vienna Dioscorides. While the captions for the figures of Magnanimity and Prudence are positioned just as in the Dioscorides miniatures, the characters have been inverted, suggesting that the artist used a system of "mirror copy" that reversed the image (Bernabò, "Tre recuperi dell' antico" [n. 7 above], 10, plate 68).

Yet, the geographical details of the map differ from the geography described on the verso. Instead, they are closer to another version of the text found in Milan, Ambrosianus Library, codex B33 sup. (hereafter Ambr.). The rich manuscript tradition of the treatise is therefore a necessary component of this study. Finally, Bon. 3632's cosmographical diagram and, most importantly, miniature of paradise facing the map will also shed light on the intention and the work of the scribe or mapmaker.

## The Map of the *Oikoumene*: Cartographical Context

The map (143 × 219 mm) is framed by a rectangular strip of brown land. A few plants are schematically drawn on this external contour. Within this frame, the river ocean surrounds five elongated strips of land, colored in brown and dark green and of similar width; the third and fourth strips are joined together in a backward C-shape, forming a single landmass, effectively twice as long as the others. Bodies of water, all painted blue, separate each of these strips. Inside the external land frame, therefore, we may count four landmasses, four bodies of water (the four seas of the text, mentioned above), and the ocean surrounding the whole. The map is oriented with south at the top. Many islands and cities are represented, most of which are unidentified: of the sixty-six locations (cities or islands) drawn on the map, only twenty-eight are named. Islands and cities, and some principalities, are represented schematically as a red, fortified ensemble of towers. The most prominent among them is Constantinople, which appears at the center of the left-hand side of the map (in the east). Some fortifications are outlined with white paint, but not systematically. No plants, animals, or people are represented on the islands and interior landmasses. As in the astronomical diagram, a sketch of the map was done before painting. Faded traces of this sketch are visible inside the landmasses. Some place names seem to have been written in the same faded ink as the sketch and are now difficult to decipher.

No locations are identified on the external frame of land, on the islands of the ocean, or on the topmost landmass, although several signs of cities are drawn; only the ocean is identified. It is possible that the first landmass was introduced only to separate more clearly the ocean from the first sea. The scribe's phonetic spelling, reproduced here, often complicates

the deciphering of the captions. The first sea is given the name “Ερυθρα” (Erythrean Sea), and the second landmass is named “Ινδία” (India) in two places, in the center and on the right. Armenian locations are named on this second landmass, from left to right: “Θαρσις” (Tarsus?), “Κεσαρεα” (Caesarea), “Κυλικια” (Cilicia), and “Αραράτ” (Mount Ararat). Ararat is the only mountain identified on the whole map, though the caption seems to be part of the original sketch, not the final painting. Islands, peninsulas, and cities of the second sea refer to locations in the eastern Mediterranean in the following order (left to right): “Πολοπονις” (Peloponnesos), “Χίον” (Chios), “Αλεξαν” (Alexandria), two illegible captions,<sup>15</sup> “Κεα” (Kea), and “Κυπρο” (Cyprus). The third sea corresponds to the northern Aegean Sea and the Sea of Marmara. “Βυζαντ” (Constantinople) is prominently displayed. The islands and peninsulas of “Αξία” (Oxeia), “Πρινκιπ” (Prinkipos or Prince Islands), “Σαμαθτρ” (Samothrace), “Τενοδ” (Tenedos), “Μονοβας” (Monemvasia), and “Αθον” (Athos) follow. Two faded captions appear at the bottom of this landmass. The first, “μαυρ,” may refer to the Black Sea (Μαύρη θάλασσα, fourth sea). The second is hardly legible (Βηζ?), but seems to read “Βυζαντιον” (Constantinople) once more.<sup>16</sup> The fourth landmass features the following kingdoms and principalities: “Ιβερια” (Georgia), “Ροσια” (Rus), “Χαζαρ” (Khazaria), and “Βολγαρικα μερη” (Bulgaria). A fifth caption is too faded to be legible. For the most part, the mapmaker was probably identifying the world that surrounded him: Constantinople, the eastern Mediterranean, and the Black Sea coast. The only cities other than Constantinople are Alexandria and Caesarea.

Because this is one of the rare maps still extant in Byzantine manuscripts, an overview of other Byzantine world maps is helpful to situate the work in its cartographical context and to determine whether any of

them may have influenced its layout.<sup>17</sup> Unsurprisingly, Byzantine maps are strongly influenced by classical cosmography.<sup>18</sup> The maps that have been discovered so far are usually quite schematic. One of them, an elliptical map of the oikoumene representing three continents (Europe, Africa, and Asia), major mountains, and river systems, appears in a twelfth-century manuscript of Aristotle’s *Meteorologica*.<sup>19</sup> Another type of Byzantine map, found recently in two literary manuscripts of the early Palaiologan period, may be related to Dionysios’s *Periegesis* (second century CE) or the commentary on his work by Eustathios of Thessalonike (ca. 1115–1195/96?) and represents the eastern Mediterranean and the Black Sea as an inverted T within a square.<sup>20</sup> Locations are sparse, but include the ocean, Lake Maeotis (Sea of Azov), Rhodes, Cyprus, Cape Sarych (Crimea), Bithynia, Constantinople, and Rome.<sup>21</sup> A circular map featuring winds and climates, usually attached to the anonymous scholia on Theon

17 Few Byzantine maps of the world survive, which may explain the all too brief overview of the field of Byzantine cartography in the multivolume *History of Cartography* [= *HOC*] (O. A. W. Dilke, “Cartography in the Byzantine Empire,” in *HOC*, 1:266–74). About this lacuna, see A. V. Podosinov, “Kartografiia v Vizantii (K postanovke voprosa),” *VizVrem* 54 (1993): 43–48. For a more recent state of the field, see A. G. Papadopoulos, “Exploring Byzantine Cartographies: Ancient Science, Christian Cosmology and Geopolitics in Byzantine Imperial-Era Mapping,” *Essays in Medieval Studies* 27 (2011): 117–31. Textual allusions, by Michael Psellos for instance, indicate that maps were used, even though they may not have survived (F. Pontani, “The World on a Fingernail: An Unknown Byzantine Map, Planudes and Ptolemy,” *Traditio* 65 [2010]: 181–82). The so-called Theodosian map is another example of an early Byzantine map that has not survived (Dilke, “Cartography in the Byzantine Empire,” 258–60).

18 With the exception of the spiritual cartographies depicted on icons and explored by V. della Dora, “Gardens of Eden and Ladders to Heaven: Holy Mountain Geographies in Byzantium,” in *Mapping Medieval Geographies: Geographical Encounters in the Latin West and Beyond, 300–1600*, ed. K. D. Lilley (Cambridge, 2014), 271–99; and “Windows on Heaven (and Earth): The Poetics and Politics of Post-Byzantine Cartographic Icons,” *Journal of Medieval Religious Cultures* 38, no. 1 (2012): 84–112.

19 C. Graux and A. Martin, “Figures tirées d’un manuscrit des Météorologiques d’Aristote,” *RPh* 24 (1900): 11–13, plate II.

20 Paris, Bibliothèque Nationale de France, codex gr. 2735, fol. 16v, dated 1260–1280 (Marcotte, “Une carte” [n. 16 above], 641–59); Rome, Biblioteca Apostolica Vaticana, codex gr. 915, fol. 47v, dated between the late thirteenth century and 1311 (Pontani, “The World on a Fingernail,” 180–89).

21 Marcotte, “Une carte,” 651–53. For explanations on the toponym “Thinia,” see 656.

15 A place starting with μαρ (Marmari?), and another one called “νεαβ[?]θια”.

16 These captions seem to have been part of the original sketch, in which the landmasses were thinner. If this is the case, the first caption would have appeared in the blue of the sea in this original sketch, and the second on the third landmass. The designation of the Euxinos as the Black Sea reappeared in Byzantine texts after 1261 (D. Marcotte, “Une carte inédite dans les scholies aux Halieutiques d’Oppien: Contribution à l’histoire de la géographie sous les premiers Paléologues,” *REG* 123, no. 2 [2010]: 656–58).

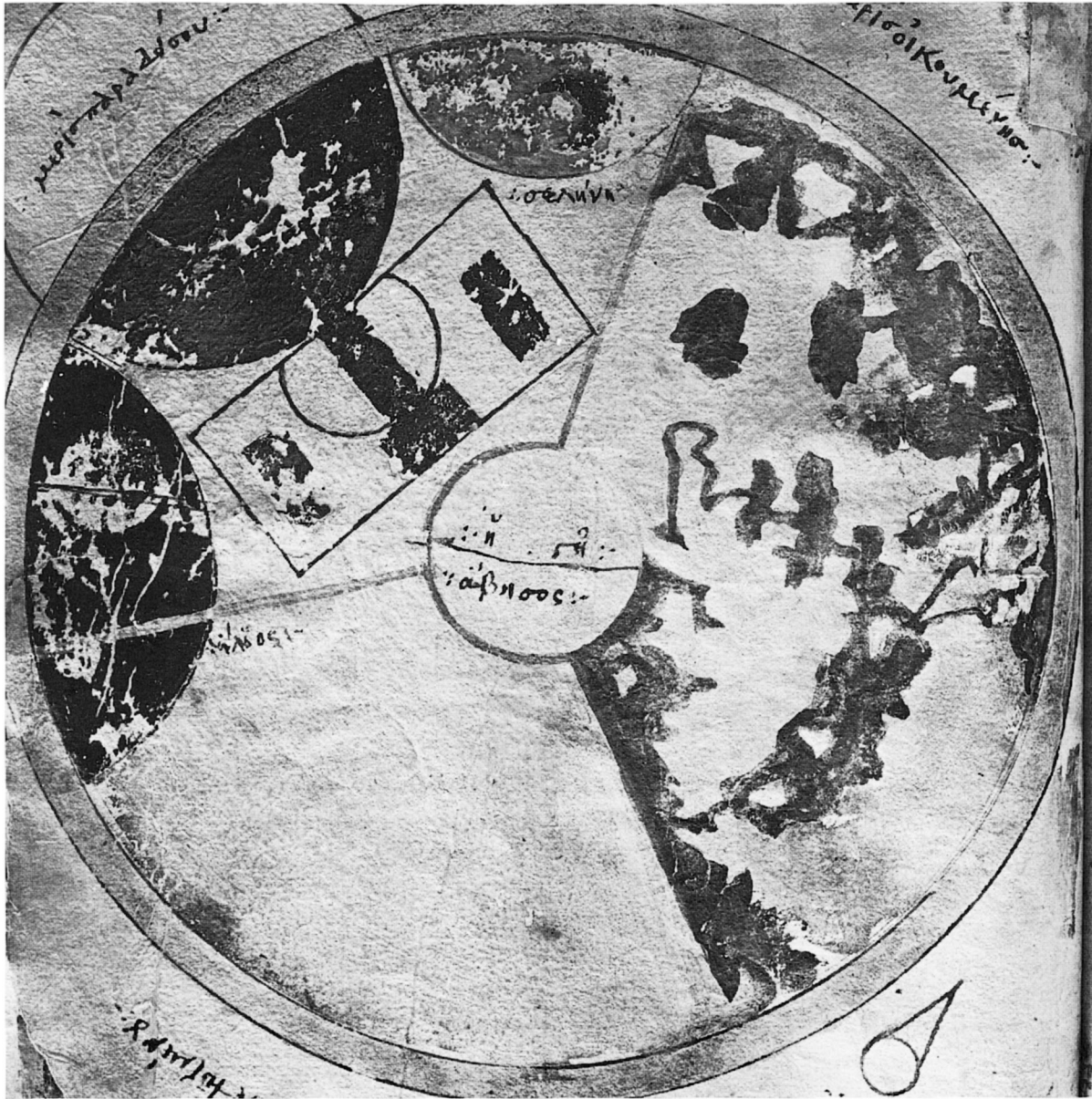


FIG. 5. Venice, Biblioteca Marciana, cod. gr. Z 516 (fourteenth century), fol. 4r. Reproduced with authorization

of Alexandria's commentary on Ptolemy's *Handy Tables* (fourth century CE), is also reproduced in several manuscripts ranging from the thirteenth to the sixteenth centuries.<sup>22</sup> In Oxford, Bodleian Library, Codex Seldenianus 17, fol. 101r, the center of a wind diagram

schematically represents, below a stripe identified as the ocean, a world divided into three triangles: the oikoumene, the sea (θάλασσα), and the uninhabited earth (ἀοίκητα). Finally, in Par. 36, fol. 218r, the center of the cosmographical diagram represents a quadripartite circular earth with the following layers and captions from

22 O. Neugebauer, "A Greek World Map," in *Le monde grec: Hommage à Claire Préaux*, ed. J. Bingen, G. Cambier, and G. Nachtergaele (Brussels, 1975), 312–17; E. Edson and E. Savage-Smith,

"An Astrologer's Map: A Relic of Late Antiquity," *Imago Mundi* 52 (2000): 7–29.

top to bottom: paradise, oikoumene, sea (ἡ θάλασσα), and uninhabited earth (ἡ ἔρημος) (fig. 4).<sup>23</sup>

The most detailed Byzantine maps are the regional and world maps based on geographical coordinates found in manuscripts of Ptolemy's *Geography* from the late thirteenth century onward.<sup>24</sup> Most of these maps are very consistent, as they all stem from a similar tradition and organize the world with a grid of meridians and parallels. Contrary to their Latin counterparts, Byzantine Ptolemaic maps were also highly schematic, representing angular coasts and territories, straight-flowing rivers, and thin, flat mountain ranges.<sup>25</sup> On fourteenth-century manuscripts, cities were also represented schematically by towers, just as on the Bon. 3632 map of the oikoumene.<sup>26</sup> One of these maps is most peculiar, however. In Venice, Biblioteca Marciana, codex gr. Z 516, fol. 4v (hereafter Marc. 516), a fourteenth-century manuscript, the spherical cosmos is divided into three zones (fig. 5): the zone of paradise (μερίς παραδείσου), the inhabited zone (μερίς οἰκουμένης), and the frigid zone (μερίς κατεψυγμένου). In the center, a spherical earth is divided into two parts: the earth (ἡ γῆ) and the abyss (ἡ ἄβυσσος). Sun and moon are respectively represented to the left and at the top of the map. The sphere of paradise stretches toward the heavens on its external side and the firmament on the interior, where it touches a rectangle representing the oikoumene and the seas in a way that is strongly reminiscent of Kosmas Indikopleustes's map of the oikoumene in the manuscripts of the *Christian Topography*.<sup>27</sup>

The Bon. 3632 map does not replicate any of these other maps. Representing the world as oblong islands floating parallel to one another on the seas is quite unusual in Byzantine and even medieval cartography. Yet the rectangular frame of the Bon. 3632 map and the presence of land beyond the ocean are also reminiscent of the world maps of Kosmas Indikopleustes (fig. 6), just as the map of Marc. 516. The *Christian Topography*, written in Alexandria in the sixth century and attributed to Kosmas, is based on a literal interpretation of the Bible that considered the world to be shaped like a vaulted box in which the earth is laid flat at the bottom. This interpretation aimed to provide an alternative to the spherical worldview dominant at the time. The maps of the inhabited world that illustrate the three remaining copies of Kosmas's work (dated from the ninth to the eleventh centuries) are oriented to the north and represent the oikoumene, the surrounding ocean, another (uninhabited) earth around the ocean, and paradise in the east, from which flow four rivers. Four gulfs cut into the oikoumene, the length of which is twice the width. On Kosmas's maps, the presence of paradise and its rivers, as well as the earth surrounding the ocean, may be linked to patristic sources, such as Ephrem the Syrian and Severianos of Gabala, while other features, such as its proportions, the river ocean, and the four gulfs, may be linked to Greek classical cartography.<sup>28</sup> As Maja Kominko has clearly shown, the rectangular maps of the oikoumene found in this deeply religious work and in some illustrated Octateuchs of the eleventh and twelfth centuries have roots in classical models.<sup>29</sup> In

23 Antonopoulos, "Πάντα ἀτελή" (n. 12 above), 39–40.

24 On Ptolemy's *Geography* in Byzantium, see S. Chrysochoou, "Η Πτολεμαϊκή Γεωγραφία στὸ Βυζάντιο," in *The Reception of Antiquity in Byzantium with Emphasis on the Palaeologan Era (Proceedings of International Conference, Sparta, 3–5 November 2012)*, ed. G. Xanthaki-Karamanou (Athens, 2014), 247–67; for a list of Byzantine manuscripts of Ptolemy's *Geography*, see Dilke, "Cartography in the Byzantine Empire" (n. 17 above), 272–74.

25 S. Roberts, *Printing a Mediterranean World: Florence, Constantinople and the Renaissance Geography* (Cambridge, MA, 2013), 24.

26 M. Della Vale, "Note sulla decorazione dei codici cartografici nell'età dei Paleologi," in *Bisanzio e l'Occidente: Arte, archeologia, storia; Studi in onore di Fernanda de' Maffei*, ed. F. De' Maffei and C. Barsanti (Rome, 1996), 261–62.

27 Ibid., 267; description in I. Furlan, *Codici greci illustrate della Biblioteca Marciana* (Milan, 1981), 4:30–48. Note that the maps of this manuscript have been carelessly drawn, without respect to—or misunderstanding—instructions and proportions suggested by Ptolemy (F. Mittenhuber, "The Tradition of Texts and Maps in Ptolemy's *Geography*," in *Ptolemy in Perspective: Use and Criticism*

*of His Work from Antiquity to the Nineteenth Century*, ed. A. Jones, Archimedes 23 [Dordrecht, 2010], 97, 101).

28 M. Kominko, *The World of Kosmas: Illustrated Byzantine Codices of the Christian Topography* (Cambridge, 2013), 52–61.

29 Some floor mosaics may be related to this model as well, as in the case of the sixth-century church of Dumetios at Nikopolis in Epiros (H. Maguire, *Earth and Ocean: The Terrestrial World in Early Byzantine Art* [University Park, PA, 1987], 21–24). On the *Christian Topography* and its cartographical context, see Kominko, *World of Kosmas*, 52–65, and eadem, "New Perspectives on Paradise—The Levels of Reality in Byzantine and Latin Medieval Maps," in *Cartography in Antiquity and the Middle Ages: Fresh Perspectives, New Methods*, ed. R. J. A. Talbert and R. W. Unger (Leiden, 2008), 139–49. Illustrated Octateuchs also reproduce similar rectangular maps, where the earth is surrounded by the ocean. About the links between Kosmas's maps and the illustrated Octateuchs, see W. Wolska-Conus, "La 'Topographie Chrétienne' de Cosmas Indicopleustès: Hypothèses sur quelques thèmes de son illustration," *REB* 48 (1990): 161–70;



Fig. 6. Florence, Biblioteca Medicea Laurenziana, ms. Plutei IX.28 (tenth century), fol. 92v. Reproduced with the permission of the Ministero per i Beni e le Attività Culturali

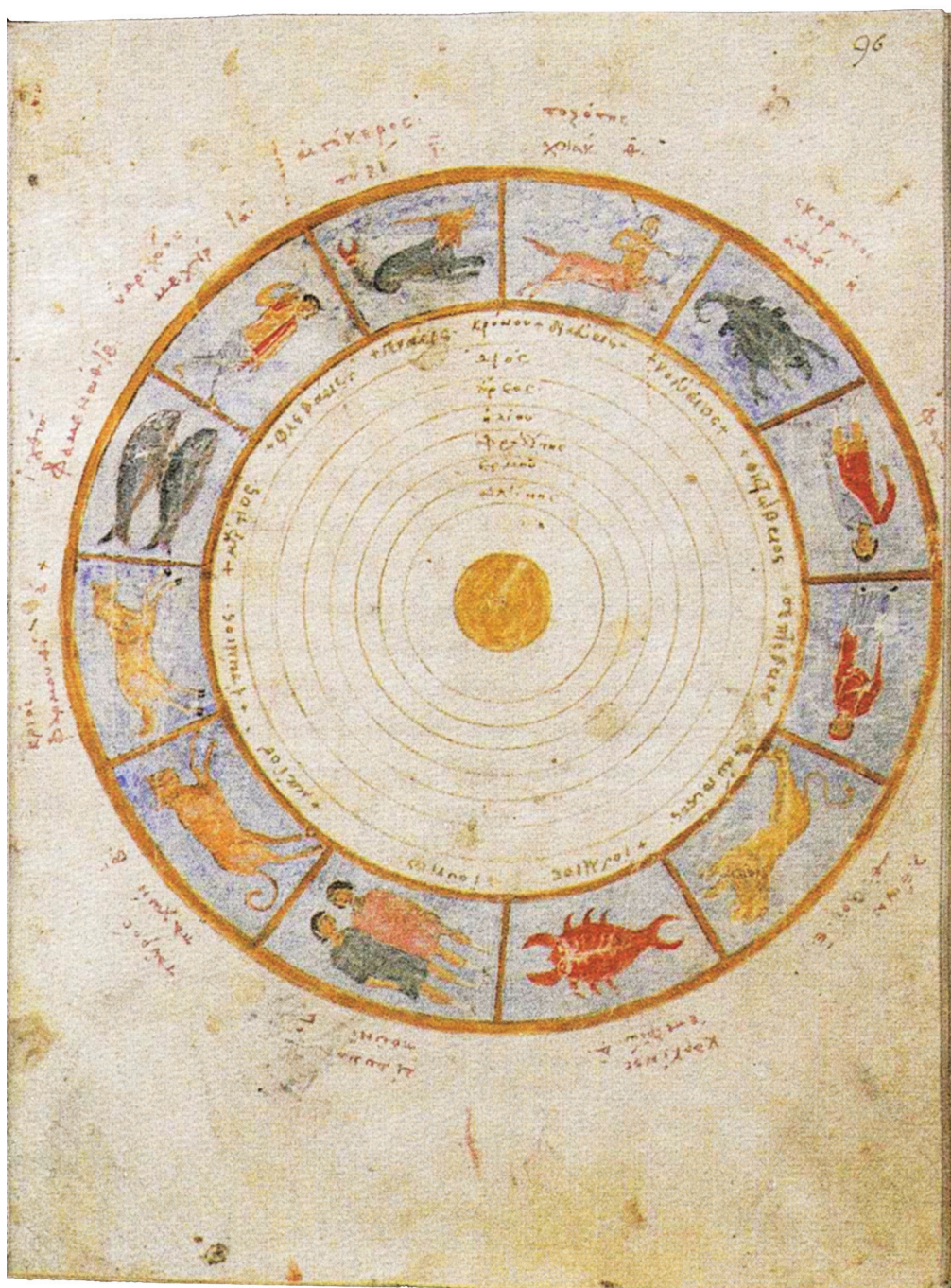


FIG. 7. Florence, Biblioteca Medicea Laurenziana, ms. Plutei IX.28 (tenth century), fol. 96r. Reproduced with the permission of the Ministero per i Beni e le Attività Culturali

fact the diagram of the spherical world, so criticized by Kosmas, also found its way into the manuscripts of the *Christian Topography* (fig. 7).

The maps of Kosmas and Bon. 3632 share the rectangular shape of the frame, the presence of land beyond the ocean, and the ratio of the oikoumene. Unlike the *Christian Topography*, the text of Bon. 3632 rejects explicitly the existence of land beyond the ocean, with the exception of paradise.<sup>30</sup> But just as the *Christian Topography*, the cosmographical treatise mentions that the length of the oikoumene is twice the width and even provides specific measurements (250,000 by 125,000 stadia).<sup>31</sup> These proportions are not respected on the map, however, since its length is only one and a half times its width. Parallels with the Kosmas maps are ultimately limited, though: there are no cities or islands on the Kosmas maps, and no rivers of paradise on the Bon. 3632 map. Nor can the iconography of Kosmas's four gulfs be said to have inspired the Bon. 3632 mapmaker: on Kosmas's map, these four gulfs are circular inlets piercing the periphery of the oikoumene, not slicing the oikoumene into four strips. That Kosmas's map of the oikoumene also inspired the cartographer of Marc. 516, a manuscript of Ptolemy's *Geography* in the fourteenth century, shows that such classical iconography was still influential in the late Byzantine period. It does not, however, mean that the cartographers necessarily embraced Kosmas's other views.

Identifying unnamed islands is a matter of speculation. Yet some aspects of the Bon. 3632 map have parallels in other medieval examples, such as the Catalan atlas (1375), the Borgia map (ca. 1430), and the Fra Mauro map (ca. 1450), although I do not suggest that the Bon. 3632 mapmaker was aware of any of these works in particular. For instance, the cluster of five islands between the two Indias, where one is larger than the other four, is reminiscent of representations on these other maps of the numerous islands of the

east, including the large island of Taprobane. The cluster of eight islands in the southwest (top right corner of the map) may evoke representations of the islands of the Atlantic.<sup>32</sup> While these island clusters may just be products of the artist's imagination, they may also indicate some familiarity with contemporary cartographical traditions. In fact, the emphasis on islands on the map and in some versions of the accompanying text, as we shall see below, may go back to a classical pedagogical concept according to which memory was more effectively triggered through visualization. As discrete items, islands were considered easily memorized, which may explain Dionysios's exclusive focus on islands in his second book of the *Periegesis* and the success of *isolarii* (island books) in the Renaissance.<sup>33</sup>

Pictorial signs for cities were common in medieval cartography. They often emphasized familiar landmarks, such as a church or a citadel, with varying degrees of realism.<sup>34</sup> In Bon. 3632's case, the same symbol is used for all landmarks: two or, more often, three fortified towers, crudely executed, which stand not only for cities (Constantinople, Caesarea, and Alexandria), but also for principalities (India, Iberia, Rus, Khazaria, and Bulgaria), islands, mountains (Ararat), and other unidentified locations.<sup>35</sup> Unlike many medieval maps, there is no attempt to distinguish sites with different pictograms for churches, diverse types of fortresses, or mountain ranges.<sup>36</sup> On Ptolemaic maps, including on the regional maps of Marc. 516, cities are also represented as pronged towers and mountain ranges are schematically indicated by dented lines.<sup>37</sup> On Bon. 3632,

C. Hahn, "The Creation of the Cosmos: Genesis Illustration in the Octateuchs," *CahArch* 28 (1979): 29–30; J. Lassus, "La création du monde dans les Octateuques byzantins au douzième siècle," *TM* 62 (1979): 111–16 and 144–46.

30 Bon. 3632, fols. 337v and 338v. According to Kosmas Indikopleustes, the uninhabited earth around the ocean was the place where humanity lived before the flood (W. Wolska-Conus, *Cosmas Indicopleustes, Topographie Chrétienne*, SC 149, 159, 197, 3 vols. [Paris, 1968–1973] [hereafter *Christian Topography*], 2.24).

31 Bon. 3632, fol. 337v; *Christian Topography*, 2.24.

32 E. Edson, *The World Map, 1300–1492: The Persistence of Tradition and Transformation* (Baltimore, 2007), 84–87, 176–77.

33 V. Della Dora, "Mapping a Holy Quasi-Island: Mount Athos in Early Renaissance *Isolarii*," *Imago Mundi* 60, no. 2 (2008): 155–56.

34 D. Woodward, "Medieval Mappaemundi," in *HOC*, 1:326; A.-D. v. den Brincken, "Die Ausbildung konventioneller Zeichen und Farbgebungen in der Universalkartographie des Mittelalters," *Archiv für Diplomatik* 16 (1970): 344–46. Fifteenth-century *isolarii* sought greater realism in representing a landmark (N. Belavilas, "Aegean Sea Islands and Ports through the *Isolarii* of the Fifteenth and Sixteenth Centuries," in *Eastern Mediterranean Cartographies*, ed. G. Toliás and D. Loupís [Athens, 2004], 53–56).

35 Two- and three-tower signs are used in the Borgia map, although the drawing is executed with considerably more precision (Edson, *World Map*, 176–77).

36 Woodward, "Medieval Mappaemundi," 326.

37 See examples in Mittenhuber, "Tradition of Texts" (n. 27 above), 101–3.

Constantinople is the only uniquely marked place, represented larger than any other location to emphasize that it was one of the largest cities of the medieval world or simply because the map was produced there.<sup>38</sup> The central position of Constantinople on the map points to the latter hypothesis, without precluding the former. Indeed, the Byzantines often organized the oikoumene in relation to the capital of their empire.<sup>39</sup> The curvature of the third landmass—possibly a coarse reproduction of the coast's curvature along the Aegean Sea and the Sea of Marmara—is a notable specificity in an otherwise vague map, which may indicate a site more familiar to the author.

The Bon. 3632 map roughly follows an orientation from south (India) to north (Rus), just as the text on folio 338v. Such an orientation to the south is unusual among extant Byzantine maps, which are generally oriented to the north or the east, but other south-oriented examples have been found in medieval cartography.<sup>40</sup> The fifteenth-century Borgia, Walsperger, and Fra Mauro maps are oriented in such a way; a south orientation is also used more systematically in Muslim cartography.<sup>41</sup> While such sources of inspiration are possible, the influence of the text, which goes from south to north in its description of the seas, is much more likely. In fact, one should not look for exact or even consistent correspondences between the spatial organization of the map and the geographical positioning of the cities and islands mentioned. As such, the layout of the map is more reminiscent of itineraries and place lists, such as

the Peutinger map, which follows a textual order rather than a topographical one.<sup>42</sup> Neither the text on the four seas nor the map are itineraries; rather, the map may be read as the paragraphs of a text from top to bottom. In this sense, the map is subordinate to the spatial organization conceptualized by the text, to which we now turn.<sup>43</sup>

### The Cosmographical Treatise and Its Textual Tradition

The layout of the map is intrinsically tied to the passage on the four seas and the ocean in the anonymous cosmographical treatise on “the heavenly and earthly matters, as well as the elements,” which it illustrates. Yet the matter of the relationship between the text and the map is not so simple. Several versions of this text circulated in late Byzantine manuscripts, and our map, while physically attached to one of these textual traditions, seems to have been influenced by another. This is not the place to provide a detailed analysis of all the manuscripts that reproduce the text, but it is worth making a few observations.

As mentioned above, this cosmographical treatise was relatively successful in the Byzantine world. Twenty-two manuscripts from the fourteenth to the sixteenth centuries alone have been identified so far. That the text was popular in some milieus—notably monastic—may explain why Slavonic translations of some of these versions circulated in Serbia and Muscovy.<sup>44</sup> Overall, the text deals with standard issues of natural philosophy. The most complete versions include sections related to cosmology and cosmography (position, shape, and size of the earth; origin and interactions of the elements); geography (twelve mountains, seven climes, antipodes, paradise, four seas, ocean, an immortal source); meteorology (earthquakes, thermal

38 That the large size given to the city of Constantinople referred to the size of the city rather than the origin of the mapmaker was an argument made in the case of the pseudo-Isidorean Vatican map (L. S. Chekin, “Easter Tables and the Pseudo-Isidorean Vatican Map,” *Imago Mundi* 51 [1999]: 20).

39 D. Angelov, “Asia and Europe Commonly Called East and West: Constantinople and Geographical Imagination in Byzantium,” in *Imperial Geographies in Byzantine and Ottoman Space*, ed. S. Bazzaz, Y. Batsaki, and D. Angelov (Washington, DC, 2013), 44.

40 The world maps of Ptolemy's *Geography*, of the scholia on Theon's commentary on the *Handy Tables*, and of Kosmas's *Christian Topography* are oriented to the north; the inverted-T maps and the elliptical world map in the manuscript of Aristotle's *Meteorologica* are oriented to the east.

41 Edson, *The World Map*, 143, 176–77, 180–88. On Muslim maps, see Woodward, “Medieval Mappaemundi,” 337; examples in G. R. Tibbetts, “The Balkhi School of Geographers,” in *HOC* 2, book 1, 115–21.

42 On the Peutinger map, see B. Salway, “The Nature and Genesis of the Peutinger Map,” *Imago Mundi* 57, no. 2 (2005): 119–35; on Roman itineraries and their influence on Byzantine cartography, see Dilke, “Cartography in the Byzantine Empire” (n. 17 above), 258–60.

43 P. Gautier-Dalché, “De la glose à la contemplation: Place et fonction de la carte dans les manuscrits du haut Moyen Âge,” in *Géographie et culture: La représentation de l'espace du VI<sup>e</sup> au XII<sup>e</sup> siècle* (Aldershot, 1997), 720–22.

44 In the Slavic world, the treatise is sometimes called “On the Egg” (list of manuscripts in V. V. Mil'kov, “Kosmologicheskie kontseptsii i svedeniia v knizhnosti Drevnei Rusi,” in *Drevnerusskaia kosmologiya*, ed. G. S. Barankova [St. Petersburg, 2004], 89). Since the Slavic tradition does not bring new elements to the analysis of the map, it will be left out of this discussion.

waters, clouds, twelve winds, thunder and lightning, meteors); and basic astronomy (heavenly spheres and zodiacal calendar).<sup>45</sup> Similar issues are touched upon in other Byzantine works, such as Michael Psellos's *De omnifaria doctrina*, Symeon Seth's *Conspectus rerum naturalium*, or the anonymous text of the Baroccianus gr. 131, which suggests that the cosmographical text belonged to a basic curriculum in natural philosophy.<sup>46</sup>

Yet the ideas that the text upholds are far from usual, considering how Byzantine scholars generally framed natural philosophy through a Neoplatonic Aristotelian approach.<sup>47</sup> The text's trademark is a sentence describing the earth, which allows for its identification in most manuscripts: "The shape of the earth is neither square nor triangular, nor entirely spherical; rather it is oblong (ἀμφικυκλομήκον), as in the shape of an egg (αὐγοκατάστατον)" (Bon. 3632, fol. 336v). Most versions explain at length how such an oval or oblong earth remains stable in the center of the universe and reject the possibility that the earth could be supported by seven pillars (Proverbs 9:1) or by waters (Psalms 135:6). Instead, the earth's central position is preserved thanks to the swift rotation of the heavens, which sends a blow striking the earth from all directions, thus maintaining its place. The text also discusses the role of the elements in the genesis of the world and ascribes to their lightest vapor the formation of the heavens, whereas their densest and heaviest parts were confined to the bottom, or middle, of the universe. Intriguingly, air is also the origin of the other elements. Each element

is given two qualities that, in most manuscripts, do not correspond to the usual Aristotelian (and Galenic) ideas: air—dry and cold (instead of moist and hot); water—moist and cold; earth—dry and moist (instead of dry and cold); and fire—dry and hot.<sup>48</sup> Interestingly, the elemental qualities are corrected in Bon. 3632, although earth is missing from its list (fol. 336v). The necessary balance between the elements, particularly between earth and water, is then the occasion to examine the largest waters on the earth, i.e., the ocean and the four seas, although not all versions reproduce these geographical passages. Some versions also include a discussion of paradise, the antipodes, and twelve important mountains, the list of which is as unusual as the description of the four seas.<sup>49</sup> The text continues with explanations about meteorological phenomena, which have little to do with Aristotle's *Meteorologica*, the usual source of Byzantine meteorology.<sup>50</sup> Several versions of the text conclude with a discussion of the planets and the movement of the sun through the zodiac. Overall explanations remain simple; the inclusion of biblical and liturgical references shows that the text was adapted to an Orthodox audience, and may explain the success of this work in a variety of codicological contexts, from the most scientific to the most religious.<sup>51</sup>

Few manuscripts reproduce similar versions of the text. They vary greatly in structure, phrasing, and sometimes even in the ideas presented. The following is a list of the codices that reproduce the passages on paradise, the four great seas, and the ocean. Only Bon. 3632 is illustrated. The geographical section is but one smaller part of this usually brief treatise; it is indicated in parentheses.<sup>52</sup>

45 The most complete edition of the text remains that of P. Polesso-Schiavon, to which I will refer throughout this article as long as it reproduces the Bon. 3632 version ("Un trattato inedito di meteorologia di Eustrazio di Nicea," *RSBN* 2–3 [1965–66]: 297–300).

46 See L. G. Westerink, *Michael Psellus: De omnifaria doctrina; Critical text and introduction* (Nijmegen, 1948); A. Delatte, *Anecdota Atheniensia et alia*, vol. 2, *Textes grecs relatifs à l'histoire des sciences* (Liège, 1939); I. N. Pontikos, *Anonymi Miscellanea Philosophica: A Miscellany in the Tradition of Michael Psellos (Codex Baroccianus Graecus 131)*, *Corpus Philosophorum Medii Aevi, Philosophi Byzantini* 6 (Athens, 1992). The anonymous cosmography was notably used as a basic introduction to the natural world in Serbian and Russian monasteries (see Caudano, "Cosmography" [n. 11 above]; R. Romanchuk, *Byzantine Hermeneutics and Pedagogy in the Russian North: Monks and Masters at the Kirillo-Belozerskii Monastery, 1397–1501* [Toronto, 2007], 179–82).

47 B. Bydén, "Natural Philosophy, Byzantine," in *The Encyclopedia of Medieval Philosophy*, ed. H. Lagerlund (Dordrecht and London, 2011), 859.

48 Caudano, "Cosmography."

49 The twelve mountains are Atlas, Syrakousios, Sabbatianos, Ararat, Orgias, Athlatikos, Ida, Olympos, Arktorion, Thessalikos, Athos, and Gadeiron (or head of Gades). Mountains are described according to the curiosities that may be found around them, but their listed order may vary between manuscripts. There is no equivalent to this descriptive list in the usual geographical literature (S. N. Gukova, "Leningradskii fragment neizvestnoi astrologicheskoi rukopisi," *VizVrem* 46 [1986]: 204–8; Delatte, "Un manuel" [n. 10 above], 214–17).

50 About many of these issues, see Caudano, "Cosmography."

51 For more details on the ideas found in this text and their sources, see Delatte, "Un manuel" (n. 10 above); regarding the manuscripts, see note 11 above.

52 Later manuscripts have not been included. Marginalia to John Lydos's *De mensibus* in Madrid, Real Biblioteca del Monasterio San Lorenzo del Escorial, codex Φ III-11, fols. 118v–119r, summarize the

1. Athens, National Library, codex 1308 [= Ath.], fols. 1r–7v (at 2v–4r), end of the sixteenth century<sup>53</sup>
2. Bon. 3632, fols. 334v–339v (at 337v–338v), ca. 1440
3. London, British Library, codex Add. 34060 [= BL], fols. 418r–422r (at 420r–v), completed in 1438
4. Milan, Biblioteca Ambrosiana, codex B33 sup. [= Ambr.], fols. 18r–43v (at 28v–31r), fifteenth century
5. Oxford, Bodleian Library, codex Seldenianus Supra 17 [= Selden.], fols. 86v–92r and 197v–198v (at 197v–198v), fourteenth to fifteenth centuries
6. Paris, Bibliothèque Nationale de France, codex gr. 1612 [= Par. 1612], fols. 128r–135r (at 130v–132v), completed in 1493
7. Paris, Bibliothèque Nationale de France, codex gr. 2219 [= Par. 2219], fols. 20r–24v (at 23v–24v), fifteenth century<sup>54</sup>
8. Paris, Bibliothèque Nationale de France, codex gr. 2317 [= Par. 2317], fols. 21v–23v (at 21v–22r), sixteenth century
9. Paris, Bibliothèque Nationale de France, codex gr. 2419 [= Par. 2419], fols. 141r–143v (at 143r), fifteenth century
10. Paris, Bibliothèque Nationale de France, codex suppl. gr. 1238 [= Par. sup. 1238], fols. 82v–84v (at 83v), sixteenth century
11. Rome, Biblioteca Apostolica Vaticana, codex Palatinus gr. 364 [= Pal.], fols. 84r–89v (at 86r–87v), fifteenth century
12. Rome, Biblioteca Apostolica Vaticana, codex Urbinates gr. 76 [= Urb.], fols. 100v–107v (at 101v–103v), fifteenth to sixteenth centuries
13. Venice, Biblioteca Marciana, codex gr. III-4 [= Marc. III-4], fols. 352v–355v (at 353v–354v), sixteenth century<sup>55</sup>

text, briefly outlining the extent of the first three seas only and similarly concluding that “the others are lakes rather than seas” (edition in C. Larrain, “Miszellen zur Scor. Graec. 230 (Φ-III-11). 2. Teil,” *ZPapEpig* 106 [1995]: 141).

53 Edited by A. Delatte, “Geographica,” *BZ* 30 (1929–1930): 511–18.

54 Partly edited by F. Cumont, in *CCAG* 8, book 4 (Brussels, 1921), 108–13; only the description of the first sea is reproduced on pp. 112–13.

55 The text of Marc. III-4 and Par. 1612 has been edited in Polesso-Schiavon, “Un trattato inedito” (n. 45 above), 292–304.

Two textual traditions come out of these thirteen manuscripts. The first is more explanatory and emphasizes the boundaries of the four seas; the second is briefer, but also offers a list of places, particularly islands. Curiously, the text of Bon. 3632 follows the first of these two traditions, but the structure of the treatise is somewhat influenced by the second. Furthermore, the map on the recto of the text (fol. 338r) identifies islands cited in manuscripts of the second tradition, but not mentioned in the text on fol. 338v.

Manuscripts of the first tradition include BL, Marc., Par. 1612, Par. sup. 1238, Pal., and Urb. Their phrasing and ideas are close to that of Bon. 3632. Establishing the structure of the cosmographical treatise is complex, since in many cases there are no headings and the order of the text varies among the different versions. Yet some trends are discernible, and from these trends, interesting variants can be highlighted. In these manuscripts, indeed, the geographical sections are often squeezed between meteorological questions. Issues are discussed in the following order (table 1): shape and position of the earth, nature of the heavens, antipodes,<sup>56</sup> earthquakes, elements, four great seas, ocean, clouds and other meteorological phenomena, structure of the heavens, and zodiacal calendar.

Bon. 3632 does not entirely follow this structure, however, and includes, before the discussion of the earth, a passage on the nature and structure of the heavens, where the cosmographical diagram has been inserted (see fig. 1), and where the four elements are discussed. Furthermore, a passage on paradise and an illustration of the gates of paradise have been added on one folio (fig. 2) before the section on earthquakes. Earthquakes are discussed on the top half of folio 338r, and the map of the oikoumene occupies the bottom half of the same folio (fig. 3), in such a way that paradise and oikoumene face one another. Geographical sections (seas and ocean) are discussed on the verso (fol. 338v), followed by meteorological phenomena and the zodiacal calendar (see table 1).

Three other manuscripts are more remotely related to this tradition. In Par. 2219, another medical compilation, the information about the ocean and the four great seas is similar to Bon. 3632, though the phrasing differs. Furthermore, in this version astrological sections have been included between the discussion

56 Not in Marc., Par. sup. 1238, or Bon. 3632.

Table I. Comparative structure of the *Anonymous Cosmography*.

Structure in Bon. 3632	Structure in tradition I	Structure in tradition II
Nature and structure of the heavens, with a diagram (fols. 335v–336v)	Shape and position of the earth in the heavens	Shape and position of the earth in the heavens
Elements (fol. 336v)	Antipodes	Mountains
Shape and position of the earth in the heavens (fols. 336v–337v)	Earthquakes	Antipodes
<b>Paradise</b> and miniature (fol. 337v)	Elements	<b>Paradise</b>
<b>Earthquakes</b> and map (fol. 338r)	Four seas	<b>Earthquakes</b>
<b>Four seas</b> (fol. 338v)	Ocean	<b>Four seas</b>
<b>Ocean</b> (fol. 338v)	Clouds	<b>Ocean</b>
Clouds (fol. 339r)	Thunder and lightning	Thermal waters
Thunder and lightning (fols. 339 r–v)	Comets	Elements
Comets (fol. 339v)	Structure of the heavens	Clouds
Zodiacal calendar (fol. 339v)	Zodiacal calendar	Winds
		Thunder and lightning
		Comets
		Nature and structure of the heavens
		Zodiacal calendar

Bold text identifies similar structures of Bon. 3632 and Ambr.

of the heavens and that of the earth. Finally, in Par. 2317 and Ath. the text has been expanded substantially to include information sometimes found in the second tradition. Overall, BL is the most complete manuscript of the first tradition.

Manuscripts of the second tradition include only Ambr. and Par. 2419. Topics are discussed in the following order: shape and position of the earth, mountains, antipodes, paradise, earthquakes, four seas, ocean, thermal waters, elements, and meteorological and astronomical sections. Selden. follows this textual tradition as well, but takes nothing from its structure.

Indeed, the text has been reorganized in two different sections of the manuscript. In this case, the geographical sections (on the four seas and on the mountains) are isolated from the cosmographical and meteorological issues.<sup>57</sup> Ambr. offers the most complete version of the second tradition of the text.

In Bon. 3632 and in Ambr. the waters of the earth (the four seas and the ocean) are discussed after earthquakes. Interestingly, the same sequence appears in the doxography of pseudo-Plutarch, where earthquakes, the origin and nature of seawaters, and tides follow one another.<sup>58</sup> In the seventh-century *Cosmography* of the Armenian scholar Anania Shirakatsi, who received his education in Trebizond from the Greek philosopher Tychikos, earthquakes are also discussed before the seas.<sup>59</sup> This may be a sign that the anonymous treatise of Bon. 3632 was related to an older Greek curriculum. Contrary to most geographical treatises, though, including pseudo-Plutarch's and Shirakatsi's, our cosmographical treatise is cursory and describes little of the oikoumene and its rivers, rocks, flora, fauna, and inhabitants. Only a few countries, islands, and cities are mentioned to outline the extent of the four seas. Overall, these descriptions find few equivalents among the geographical works usually studied by the Byzantines, who had developed and relied on the texts, sometimes abridged or rewritten, of Strabo, Ptolemy, and Dionysios Periegetes.<sup>60</sup> In the following I will discuss the text of Bon. 3632, insofar as it may help us understand the map.

### *The First Sea*

In manuscripts of tradition I, including Bon. 3632,<sup>61</sup> the first sea (also called the Erythrean or Red Sea) corresponds roughly to the Arabian Gulf and portions

57 In Selden., the cosmological and meteorological sections appear on fols. 86v–92r, while the section on the four seas is reproduced on fols. 196v–98v, along with a description of twelve mountains. The ocean is not described.

58 Ps.-Plutarch, *Placita philosophorum*, 3.15–17.

59 K. S. Ter-Davtian and S. S. Arevshatian, *Anania Shirakatsi: Kosmografiia* (Erevan, 1962), 42–50; J.-P. Mahé, "Quadrivium et cursus d'études au VII<sup>e</sup> siècle en Arménie et dans le monde byzantin d'après le 'K'nnikon' d'Anania Širakac'i," *TM* 10 (1987): 162.

60 Angelov, "Asia and Europe" (n. 39 above), 46–47.

61 Since the information on the four seas and the ocean in Bon. 3632 is consistent with other manuscripts of tradition I, I refer the reader to Polesso-Schiavon's edition of the text on the basis of Marc. and Par. 1612 ("Un trattato" [n. 45 above], 297–300).

of the Indian Ocean, as in other geographical texts.<sup>62</sup> The text says that the Erythrean Sea starts from “Κηνοκεφαλία” (Cynocephalia)<sup>63</sup> and divides Egypt from “Αδέμ” (Eden or Aden?) at its top.<sup>64</sup> As it stretches, the first sea appears in India, cuts it in half (thus the two Indias on the map), then reaches the ocean.<sup>65</sup> A gulf in the Erythrean Sea divides Egypt from Jerusalem and was flooded in Moses’s time (Red Sea).<sup>66</sup>

The description in Ambr. differs slightly. The Erythrean Sea starts at Samarkand (ἀπὸ Σωμορκάντε) from above Mount Ararat.<sup>67</sup> It separates India from

“Θαρσεῖς” (Tarsus?).<sup>68</sup> From there, it goes east, where it joins the ocean in the southern part of paradise.<sup>69</sup> Other than the Erythrean Sea, India is the only location common to the map, the text of Bon. 3632, and that of Ambr. Remarkably, Tarsus and Ararat are found on the map of Bon. 3632 and in the text of Ambr., but not in the text of Bon. 3632. Cynocephalia, Egypt, and “Eden” appear in the text of Bon. 3632, but are not indicated on the map (table 2).

### *The Second Sea*

The second sea is that of Alexandria (southeast Mediterranean). According to Bon. 3632 and other manuscripts of tradition I, the second sea starts from the heights of Alexandria,<sup>70</sup> extends toward Cilicia, and reaches Sicily, where it joins the third sea.<sup>71</sup> According to manuscripts in the tradition of Ambr., on the other hand, the second sea starts from Alexandria, extends toward Cilicia and Europe, and stretches to Knossos.<sup>72</sup> The following list of “islands” is included:<sup>73</sup> Pharos (near Alexandria), Cyprus, Rhodes, Patmos, Peloponnesos, Chios, Kea, Mytilene, and Sicily.<sup>74</sup>

In this case, Alexandria and Cilicia are common to the map, the text of Bon. 3632, and that of Ambr. Sicily, common to both manuscript traditions, is absent from the map, while Cyprus, the Peloponnesos, Chios,

62 For instance, this is also the extent of the Red Sea trade routes according to the *Periplus of the Erythrean Sea* (L. Casson, *The Periplus Maris Erythraei* [Princeton, 1989], 11–12) and to Pliny (*Natural History*, 6.28). Regarding this issue, see M. Kominko, “The Map of Cosmas, the Albi Map and the Tradition of Ancient Geography,” *Mediterranean Historical Review* 20, no. 2 (2005): 168.

63 Guardafui cape, according to Delatte, “Un manuel” (n. 10 above), 211. Strabo called this promontory the Southern Horn, which borders the well of the “Dog-Headed People”—information derived from Artemidorus (Strabo, *Geographica* 16.4.14:43–44). The *Periplus* calls it the Spice Port and Promontory (Casson, *Periplus*, 12:110–11).

64 The Arabian Gulf? Eden (Ἐδέμ, Arabia Felix?) should read Aden according to Delatte, “Un manuel,” 211.

65 Several Indias appear in classical sources. Northern India (Punjab and northwest India) may be reached by terrestrial ways, while its southern part (Deccan and Taprobane/Ceylon) may be reached by the sea. India is sometimes associated with Ethiopia or southern Arabia, notably by early Byzantine historians (P. Janni, *La mappa e il periplo: Cartografia antica e spazio odologico*, Università di Macerata: Pubblicazioni della facoltà di lettere e filosofia 19 [Rome, 1984], 149–51; A. Dihle, “The Conception of India in Hellenistic and Roman Literature,” *The Cambridge Classical Journal* 10 [1964]: 15–17; P. Mayerson, “A Confusion of Indias: Asian India and African India in the Byzantine Sources,” *JAOS* 113, no. 2 [1993]: 171–73). Two manuscripts specify that the first sea joins the ocean against the Isles of the Blessed (Par. 2219, fol. 24; Par. 2317, fol. 22).

66 Ath. has the Red Sea divide Babylon from Tiberias, running through the city of “Saita” and reaching Antioch on the Daphne (Syrian Antioch), where it finishes (Ath., Delatte, “Geographica” [n. 53 above], 513–14). These locations point to a region between the Sea of Galilee and the Dead Sea, within the range of the Red Sea (Delatte, “Un manuel,” 212).

67 The city of Samarkand was known in fifteenth-century sources as Σαμαρχάντ (V. Grecu, ed., *Ducas: Istoria Turco-Bizantina [1341–1462]*, Scriptores Byzantini 1 [Bucharest, 1958], 15.6 [29]) or Σαμαρχάνδης (E. Darko, ed., *Laonici Chalcocondylae historiarum demonstrationes*, 2 vols. [Budapest, 1922–23], 1.107: 13), but as Μαράκανθα in Strabo (*Geographica* 11.11.4 [4]). Samarkand is situated to the east of Mount Ararat in the description of the twelve mountains (BL, fol. 415). Ararat is called the “Sparat” mountain in Par. 2317 (fol. 22).

68 India and Palestine, according to Ath. (Delatte, “Geographica,” 513). Delatte suggests the lands of the Pharses (Persia) (“Un manuel,” 211). Θαρσεῖς may also refer to the legendary biblical lands of Tarshish [Θαρσις] (1 Kings 10:22; Jonah 1:3 and 4:2) or to Tarsus (Ταρσός) in Cilicia, which is how the mapmaker seems to have interpreted the term. According to Athanasius, the Tharsis of the Book of Jonah was a city in India (Athanasius, *Quaestiones ad Antiochum Duce*, in PG 28:633.38). According to Theodoretus, Tharsis was the ancient name of Carthage (J.-N. Guinot, *Théodoret de Cyr: Commentaire sur Isaïe, III*, SC 315 [Paris, 1984], 19.156–59).

69 Also in Ath., Delatte, “Geographica,” 513–14.

70 From the Danion mountain above Alexandria (Ath., Delatte, “Geographica,” 514).

71 According to Par. 2317, the second sea extends toward Cilicia at one end and toward the island of Patmos on the other, and reaches Sicily, where it joins the third sea (fol. 22).

72 At its largest, it reaches “Stenodos,” where it is joined to the third sea (Ath., Delatte, “Geographica,” 514); “Esos” for “Stenodos” in Selden., fol. 198.

73 LSJ, s.v. “νήσος”: island or promontory. See also G. Toliás, “Isolarii, Fifteenth to Seventeenth Century,” in *HOC* 3:265.

74 Ath. also mentions the islands of “Appia” (?), Bidos (near Corfu), and Tenedos (Delatte, “Geographica,” 514).

Table 2

	Map of Bon. 3632 (fol. 338r)	Text of Bon. 3632 (fol. 338v)	Text of Ambr. (fols. 28v–31r)
<b>First (Erythrean) Sea</b>	<i>Ερυθρα (Erythrea)</i> <i>Θαρσις (Tarsus)</i> Ινδία (India) <i>Κυλικία (Cilicia)</i> <i>Αραρατ (Ararat)</i> Ινδία (India)	Ερυθρα Κηνοκεφαλία (Cynocephalia) Εγύπτος (Egypt) Αδέμ (Eden or Aden?) <b>Ηνδία (India)</b> Ἱεροσόλημ (Jerusalem)	Ἐρυθρά Σωμορκάντε (Samarkand) <b>Ἀραράτ (Ararat)</b> <b>Ἰνδία (India)</b> <b>Θαρσεῖς (Tarsus)</b> Παραδείσος (Paradise)
<b>Second Sea (Sea of Alexandria)</b>	Πολοποννίς (Peloponnesos) Κεσαρεα (Caesarea) Χίον (Chios) <u>Ἀλεξαν</u> (Alexandria) <u>Μαρ (?)</u> <i>Νεαβ?δία</i> Κεα (Kea) <i>Κυπρο (Cyprus)</i>	<i>Ἀλεξανδρία</i> <b>Ἀλεξανδρία (Alexandria)</b> <b>Κυλικία (Cilicia)</b> Σικελία (Sicily)	<b>Ἀλεξανδρία (Alexandria)</b> <b>Κυλικία (Cilicia)</b> Εὐροπος (Europe) Κνωσός (Knossos) Φαρεία νήσος (Pharos) <b>Κύπρος (Cyprus)</b> Ῥόδος (Rhodes) Πάτμος (Patmos) <b>Πελοπόννησος (Peloponnesos)</b> <b>Χίος (Chios)</b> <b>Κίος (Kea)</b> Μυτιλίνη (Mytilene) Συκέλια (Sicily)
<b>Third Sea</b>	<i>Βηζ?</i> ( <i>Sea of Byzantion?</i> ) Βυζαντ (Constantinople) Αξία (Oxeia) Πρινκιπ (Prinkipos) Σαμαθτρ (Samothrace) Τενοδ (Tenedos) Μονοβας (Monemvasia) Αθον (Athos)	<b>Βηζαντιον (Byzantion)</b> Ἀλαμανία (Dalmatia) Καλαβρία (Calabria) Γαδαρην (Gadeiron) Ρωμη (Rome)	<b>Θάλασσα Βυζαντίου (Sea of Byzantion)</b> Πέλαγος Ἀθηνῶν (Sea of Athens) τὰ τῶν Χαλδαίων ὄρη (Chaldean mountains, but Gadeiron in Par. 2.4.19) <b>Ὀξέα (Oxeia)</b> <b>Πρόγγυπον (Prinkipon)</b> <b>Τένωδος (Tenedos)</b> <b>Σαμοθράκη (Samothrace)</b> <b>Μονοβασία (Monemvasia)</b> <b>Ἄθω (Athos)</b>
<b>Fourth (Black) Sea</b>	<i>Μαυρ (Black Sea?)</i> Ἰβερια (Iberia / Georgia) Ροσια (Rus) <i>Χαζαρ (Khazaria)</i> Βουλγαρικά μερη (Bulgaria) <i>Illegible caption</i>	<i>Μαύρη θάλασσα</i> Συρακοῦση τῆς ἡ βοραν (northern Syracuse) <b>Ἰβερία (Iberia)</b> Ἀσια (Asia) Ἀλανία (Alania / Ossetia) Βηζάντιον (Byzantion)	Συρακοῦση τῆς κατὰ βορράν (northern Syracuse) τῶν Καπιῶν πυλῶν (Caspian Gates) <b>Ἰβερία (Iberia / Georgia)</b> Ἀλανία (Alania) <b>Ῥωσία (Rus / Russia)</b> Σουγδαία (Sudak) <b>Χαζαρία (Khazaria)</b> <b>Βουλγαρικὰ ὄρη (Bulgarian mountains / Balkans)</b> Βυζαντίου στενή (Strait of Byzantion)

TABLE 2 Locations mentioned on the Bon. 3632 map and in the texts of Bon. 3632 and Ambr. The phonetic spelling of Bon. 3632, including breathings and accents (or lack thereof), has been preserved. Capitalization, ligatures, and spacing have been normalized. Locations are indicated in the order in which they appear in the texts and on the map. The place names common to the map and the texts are in bold; the names of the seas are underlined; words written in faded ink on the map are italicized.

and Kea are common to the map and Ambr., but are not mentioned in the text of Bon. 3632. Finally, some locations mentioned in Ambr. are not found on the map (Europe, Knossos, Pharos, Rhodes, Patmos, and Mytilene), and two locations of the map remain unidentified (table 2). Overall, the correspondences between the map and the text of Ambr. are striking, but they are not absolute.

### *The Third Sea*

According to Bon. 3632, the third sea (roughly the northern Mediterranean) begins at Byzantion, stretches up to Alamania (Dalmatia), turns around to Calabria, and passes through the Gadeiron mountains (pillars of Hercules). From there, it joins the western side of the ocean. This description ends with the statement that Rome slopes down to the third sea. Ambr. offers a different description: the third sea starts from the Sea of Byzantion, stretches to the end of the earth, and unites with the second sea in the direction of the Sea of Athens (τὸ πέλαγος Ἀθηνῶν).<sup>75</sup> The seas pass through the Gadeiron mountains,<sup>76</sup> then come down to mix in the ocean. Islands and peninsulas of the third sea include Oxeia, Prinkipon, Tenedos, Samothrace, Monemvasia, and Athos. With the exception of Monemvasia, most of these locations belong to the northern Aegean Sea and the Sea of Marmara.

Other than Constantinople, the map does not reproduce any of the locations mentioned in the text of Bon. 3632. The list of islands more strikingly resembles that of Ambr., however: Oxeia, Prinkipon, Tenedos, Samothrace, Monemvasia, and Athos are all mentioned in the text of Ambr. and represented on the map (table 2).

### *The Fourth Sea*

According to Bon. 3632 and manuscripts of tradition I, the fourth sea starts from northern Syracuse (ἀπὸ Συρακούσης τῆς κατὰ βοράν),<sup>77</sup> extends to Iberia (Georgia), Asia, and Alania (Ossetia), and reaches the north. Turning, it stretches to Byzantion and unites

with the third sea through the Strait of Byzantion. This time the text of Ambr. is closer to that of tradition I, but offers more precision: starting from northern Syracuse, the fourth sea extends from the Caspian Gates (τῶν καπίων πυλῶν),<sup>78</sup> turns around Iberia, Alania, Russia, Sudak, and Khazaria,<sup>79</sup> and stretches to the Bulgarian mountains (Balkans). Turning to the south,<sup>80</sup> it unites with the third sea through the Strait of Byzantion.

Iberia is the only location common to the map, the text of Bon. 3632, and that of Ambr. Northern Syracuse, Alania, and the Strait of Byzantion are common to both textual traditions, but are not reproduced on the map. Instead, the map includes three more regions found in Ambr. (Rus, Khazaria, and Bulgaria) without slavishly reproducing them all (Sudak, Alania, or the Caspian Gates; table 2).

All manuscripts conclude this section with the following statement: “Αὗται γοῦν αἱ τέσσαρες καὶ μόναι θάλασσαί εἰσιν, αἱ δὲ λοιπαὶ λίμναι μᾶλλον καὶ οὐχὶ θάλασσαί” (these are the only four seas; the others are rather lakes, not seas).<sup>81</sup> This peculiar observation does not appear in any known geographical treatise. In the Byzantine world, according to Kosmas Indikopleustes and, before him, Strabo and Dionysios Periegetes, four gulfs (κόλποι) enter the oikoumene from the ocean: the Mediterranean Sea in the west, the Arabian (Erythrean) and Persian Gulfs in the south, and the Caspian (Hyrcanian) Sea in the north, an opinion later developed by Eustathios of Thessalonike in his commentary on Dionysios’s *Periegesis*.<sup>82</sup> Dionysios, and Eustathios after him, also divided the ocean into four seas (πελάγη): the Atlantic (west), Kronion (frozen sea, in the north),

75 This is the only other sea mentioned in any version of the text. According to Ath., the third sea goes through Bydos, extends to Thessaly, and joins the second sea through “Eibdos” and Stenodos (Delatte, “Geographica,” 514).

76 Gadeiron (Par. 2419, fol. 143); Chaldeion (Ambr., fol. 29v).

77 I have not been able to identify this location.

78 This is how Delatte interpreted the reference (“Un manuel,” 213). Concerning the location of the gates, see J. F. Standish, “The Caspian Gates,” *Greece and Rome* 17, no. 1 (1970): 17–24.

79 Ζαχαρία (Par. 2419, fol. 143).

80 Par. 2317 (fol. 22) and Ath. (Delatte, “Geographica,” 515) refer to the Danube at this point, the only mention of a river in all versions of the text.

81 Bon. 3632, fol. 338v.

82 *Christian Topography* 2.29 [1–14]; Strabo, *Geographica* 2.5.18 [1–18]; K. Brodersen, ed., *Dionysios von Alexandria: Das Lied von der Welt* (Hildesheim, 1994), 43–57, although Dionysios specifies that, while these are the four largest gulfs, smaller ones exist (at 56–57); Eustathios, “Commentarium in Dionysii periegetae orbis descriptionem,” in *Geographi Graeci Minores*, ed. K. Müller (Paris, 1861; repr. Hildesheim, 1965), 2:45.

Indian (east), and Ethiopian (south).<sup>83</sup> Other than the fact that there are usually four of these seas and gulfs, however, the description of the four seas bears little resemblance with these other geographical works.

As table 2 shows, the mapmaker did not follow the text on folio 338v faithfully. Instead, he has adopted locations that seem to follow more closely the second tradition of this text (Ambr.). As we have seen, the structure of the text in Bon. 3632, where paradise is described before earthquakes, is also adopted in the manuscripts of the second tradition (see table 1). In fact, even the content of the passage on paradise in Bon. 3632 (fol. 337v) is the same as the second-tradition manuscripts. Bon. 3632 and its map, or their protograph, are therefore at the crossroads of these two manuscript traditions. Yet, the map does not follow the second version slavishly. Many locations mentioned in Ambr. are missing from the map. Cilicia is attached to the lore of the second sea in both versions of the text, but to the first sea on the map. Caesarea is not mentioned in any preserved manuscript. Finally, nothing in the text indicates that landmasses should be elongated and that one of them should be curved, as they are represented on the map.

### *Ocean and Paradise*

The ocean and paradise are intricately linked in the text. In the manuscripts of the first tradition, paradise is discussed within the passage on the ocean rather than in a separate section. In the manuscripts of the second tradition and in Bon. 3632, paradise's ethereal qualities are described in a separate section, even before the seas, while its geographical location is evoked in the section on the ocean.

According to Bon. 3632, the river ocean surrounds the earth and has its source in the east, from which it spreads into two agitated flows, one to the north and the other to the south, that reunite in the west after encircling the earth. While Bon. 3632 contends that there is nothing beyond the ocean but paradise, other manuscripts, notably Ambr., suggest the absence of inhabited land rather than the absence of land altogether.<sup>84</sup> This could explain why the map has the ocean

surrounded by land, when the text on the verso says otherwise. The ocean's source is twenty-miles long and springs from the gates of paradise, which are situated twenty miles away from the ocean's source. Some descriptions add that Makarios the Egyptian reached this source, but could not travel further.<sup>85</sup> The earth slopes down to the ocean's shores, suggesting that paradise is at the top of a mountain.

In the manuscripts that have a section devoted specifically to paradise, such as Bon. 3632, emphasis is placed on its luxuriant characteristics, not so much on its geographical location, although the text does point to its quadrangular shape and its position at the eastern end of the ocean. Most radiant, wonderfully fragrant, and incorruptible, paradise is impervious to time, weather, or darkness. Neither fully intelligible to the mind nor entirely perceptible to the senses, paradise may be known to the immortal intellect and perceived through its variety of everlasting plants and fruits. It is directly below this section that the miniature of paradise in Bon. 3632 is found on fol. 337v.

Overall, the account of paradise in Bon. 3632 is supported by other Byzantine descriptions of the Garden of Eden.<sup>86</sup> Particularly noteworthy is the mention of paradise as the source of the ocean rather than the four rivers, although the rivers were frequently omitted in post-Iconoclastic descriptions of paradise. Entirely inaccessible, the earthly paradise had become a reserved place for the elect awaiting the Last Judgment, and was further isolated from the world by rivers or lakes of fire.<sup>87</sup> That paradise is also the source of the ocean is an idea discussed less frequently, but found in the *Hexaemeron* of Severianos of Gabala or the *Sermon on the Orthodox*

(fol. 30). See also Kosmas Indikopleustes' *Christian Topography* 2.2.4. Most medieval authors considered the ocean uninhabited (P. Gautier Dalché, "Comment penser l'Océan? Modes de connaissances des *finis orbis terrarum* du Nord-Ouest [de l'Antiquité au XIII<sup>e</sup> siècle]," in *L'Europe et l'Océan au Moyen Âge: Contribution à l'histoire de la navigation*, ed. Société des Historiens Médiévistes de l'Enseignement Supérieur [Paris, 1988], 220).

85 Ath. alludes to Makarios of Rome instead (Delatte, "Geographica," 515). According to the *Life of Makarios of Rome*, three monks came to the saint's dwelling, twenty miles from the gates of paradise (A. Vassiliev, *Anecdota Graeco-byzantina* [Moscow, 1893], 1:152).

86 H. Maguire, "Paradise Withdrawn," in *Byzantine Garden Culture*, ed. A. Littlewood, H. Maguire, and J. Wolschke-Bulmahn (Washington DC, 2002), 23–24; A. Saffi, *Mapping Paradise: A History of Heaven on Earth* (Chicago, 2006), 160–65.

87 Maguire, "Paradise Withdrawn," 27.

83 Brodersen, *Dionysios von Alexandria*, 27–40; Eustathios, *Commentarium in Dionysii*, 41.

84 According to Ambr., Dionysios Areopagites said that beyond the circumference of the ocean's external side there is no other oikoumene

*Faith* of John of Damascus, on the basis of Genesis 2:10–11.<sup>88</sup> The location of paradise on a mountain, as in Ezekiel 28:14, was integrated by a number of authors, including Ephrem the Syrian and, once again, John of Damascus.<sup>89</sup> The description of Paradise on folio 337v of Bon. 3632 and its representation below bring us to another interpretive layer for the map: iconography.

### The Iconography of Paradise

In accordance with the textual description, the image of the gates of paradise facing the map on folio 337v represents frontally an enclosed quadrangular garden with flowers and trees bearing many fruits (see fig. 2). Two columns or walls and a roof protect this lush garden. To the right, a brown, earthen structure appears, continuing the line of the roof. Red flames are distributed along the roofline. At the entrance is a door guarded by a flaming cherub, as in Genesis 3:24. The same red pigment has been used for the angel, the tongues of fire, and a long strip drawn behind the door but below the garden, with an inscription that reads “κακηνω”—probably an indication for color (κόκκινο = scarlet), given the bad spelling of the scribe.<sup>90</sup> This band of red may suggest a layer of fire that keeps the garden sealed from to the world. Water before the gate likely refers to the ocean, which flows out of the gate of paradise, according to the passage on the ocean on folio 338v.

It seems clear that the miniature is a faithful illustration of elements found in text: the quadrangular

shape, the river, the elevation, the fragrances suggested by flowers, the variety of plants and fruits, and the gate. Yet, this image of the garden was also inspired by other Byzantine models. The cherub, for instance, is not mentioned in the text. Although there are precedents for the different elements of the Bon. 3632 paradise illustration—a garden full of plants but no sentient beings, a cherub guarding the gate, an enclosure, a river that does not separate into four streams, and an elevation—they are rarely found together, as in our miniature.

According to Henry Maguire’s study of Byzantine gardens and the iconography of paradise, the rivers of paradise were in fact rarely represented in the post-Iconoclastic period.<sup>91</sup> Furthermore, the idea that the Garden of Eden was fully enclosed, as a safe haven inaccessible to the world, was more typical of late Byzantine depictions of gardens.<sup>92</sup> The absence of the four streams and presence of an enclosure also conform to the text of Bon. 3632. An earthly paradise frequently appears in late Byzantine Last Judgment iconography, where it shares with our image a bountiful orchard with a gate guarded by an angel.<sup>93</sup> In such iconography, the garden was generally occupied by Mary and the elect awaiting Judgment, a feature that is absent from Bon. 3632.<sup>94</sup>

Paradise is also represented in illustrated versions of the Octateuch, especially in relation to the creation story.<sup>95</sup> Many of these miniatures represent Adam or

88 According to John of Damascus, the ocean divided into four rivers: the Ganges, the Nile, the Tigris, and the Euphrates (B. Kotter, *Die Schriften des Johannes von Damaskos*, vol. 2, *Ἐκδοσις ἀκριβῆς τῆς ὁρθοδόξου πίστεως: Expositio fidei*, Patristische Texte und Studien 12 [Berlin and New York, 1973], 23 [30–41]). Severianos of Gabala identified these rivers as the Tigris, the Nile, the Euphrates, and the Danube (Severianus, *In mundi creationem* 5.5, in PG 56:478).

89 J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition* (Urbana, 2000), 40 and 43; John of Damascus, *Expositio fidei* 25 [8]; *St. Ephrem the Syrian: Hymns on Paradise*, trans. S. Brock (Crestwood, NY, 1990), 1.4. On the relationship between gardens and mountains in Byzantium, see V. Della Dora, “Gardens of Eden and Ladders to Heaven: Holy Mountain Geographies in Byzantium,” in *Mapping Medieval Geographies: Geographical Encounters in the Latin West and Beyond: 300–1600*, ed. K. D. Lilley (Cambridge, 2013), 292–98.

90 Indications for color are found in other miniatures in the codex, notably in the miniature of Julia Anicia modeled on the Vienna Dioscorides (Bon. 3632, fol. 378v; Bernabò, “Tre recuperi dell’antico” [n. 7 above], 10–11; Marchetti, “Un manoscritto” [n. 3 above], 58).

91 Concerning this issue, see Maguire, “Paradise Withdrawn,” 29.

92 Ibid., 34–35.

93 For instance, on the Last Judgment miniature of Paris, Bibliothèque Nationale de France, codex gr. 74, fol. 51v (N. P. Ševčenko, “Some Images of the Second Coming and the Fate of the Soul in Middle Byzantine Art,” in *Apocalyptic Thought in Early Christianity*, ed. R. Daly [Grand Rapids, 2009], 254, image at 261). See also B. Brenk, “Die Anfänge der byzantinischen Weltgerichtsdarstellung,” *BZ* 57 (1964): 106–26. Similarly, the Last Judgment fresco in the domed vault of the eastern bay of the Chora *parekklesion* (1316–1321) features a scarlet cherub on a column guarding the entrance to a tree-filled garden occupied by the Virgin and the elect. A similar depiction of paradise appears on the Byzantine mosaic of the Last Judgment on the inner west wall of Santa Maria Assunta in Torcello (mid-twelfth century), a Last Judgment icon from the monastery of Saint Catherine (Sinai, mid-twelfth century), as well as on the Last Judgment fresco in the narthex of the Panagia Phorbiotissa at Asinou (Cyprus, 1330s). See R. Ousterhout, “Temporal Structuring in the Chora Parekklesion,” *Gesta* 34, no. 1 (1995): 70–72.

94 Maguire, “Paradise Withdrawn,” 26–27.

95 For a list of these miniatures, see Lassus, “La creation” (n. 29 above), 93 and illustrations on plate III.

Eve inside the garden. In one example, the gate of paradise is guarded by a six-winged cherub as Adam and Eve are expelled from the garden (Genesis 3:24).<sup>96</sup> In another miniature illustrating Genesis 2:4–6, paradise is represented before the creation of man as a luxuriant garden with different types of flowers, trees, birds, and fish. Just as in Bon. 3632, water flows at the bottom of the trees in a single stream.<sup>97</sup> In another image, this one illustrating Genesis 2:10, the four rivers flow from an elevated source within a garden symbolized by a few trees but otherwise empty, just as in Bon. 3632.<sup>98</sup>

Paradise appears more rarely on Byzantine maps. It is schematically represented on the cosmographical diagram of Par. 36 as the topmost layer of a quadripartite earth (see fig. 4). A circular paradise is featured in the cosmic diagram of Marc. 516, where it symbolically touches the oikoumene and the heavens, as described above. In both cases the maps emphasize paradise's elevated position and its separation from the inhabited world. Finally, paradise also appears on the world maps of Kosmas Indikopleustes, the likely inspiration for the map of the oikoumene in Marc. 516. In the *Christian Topography*, paradise is situated in the east and is separated from the Earth by the ocean.<sup>99</sup> It is symbolized by a lush grove of fruit-bearing trees and flowers, as in Bon. 3632, but does not have a gate or a guardian. In accordance with Kosmas's text, four rivers flow from the garden underneath the ocean and into the inhabited Earth (fig. 5), a feature also absent from Bon. 3632.<sup>100</sup> While the river, the angel, the gate, the fruit-bearing trees and flowers, and the enclosure of the Bon 3632 paradise miniature can all be traced back to other iconographic models, the red strip and the oblique earthen

structure are more curious features that may refer to paradise's separation from the Earth and its elevation, as in the maps of Par. 36 and Marc. 516. As was the case for the map, the image's principal referent is the text, but another model probably inspired the artist as well.

The map of the oikoumene is more meaningful when considered together with the image of paradise. The reorganization of the text in Bon. 3632 may have been deliberate so the reader would see paradise and the oikoumene facing one another. As we have seen, Bon. 3632 is the only version of the text in the first manuscript tradition with a passage on paradise before that on earthquakes. In Bon. 3632, the description of paradise and its miniature fill up the entire folio, with the miniature occupying the bottom half of the page. The description of earthquakes and the map of the oikoumene follow the same arrangement—the map occupies the bottom half of the folio as well. In essence, such a layout allowed the miniature and the map to face one another, effectively setting paradise to the east (left) of the oikoumene.

While I cannot ascertain whether the artist of the paradise miniature and the mapmaker are the same person, the same scribe was at work not only on the text but also on the captions of both illustrations and, most likely, on the preparation of the images, as in the rest of the manuscript.<sup>101</sup> The handwriting and the phonetic spelling of the text and the captions are similar, and the sketch lines on the map and the indications for color on the miniature of paradise strengthen this argument. The case for an organic link between the two miniatures is further supported when we remember that the illustration of paradise on folio 337v does not just represent what is described above the miniature but also addresses elements from the text on the ocean that appears on the back of the map, on folio 338v, namely the gate of paradise as a source of the ocean and the slopes of its banks. Essentially, the representation of the river flowing from the gate of paradise connects the miniature to the map of the facing folio.



The map of Bon. 3632 is a puzzling work. Whether or not the artist copied another illustrated version of the text, it is doubtless that this rendition of the world and

96 Rome, Biblioteca Apostolica Vaticana, codex gr. 746 [= Vat. 746], fol. 44 (Lassus, "La creation," 138).

97 Vat. 746, fol. 32, and Istanbul, Topkapi Sarayı, codex 8, fol. 38v (Lassus, "La création," 123, illustration on plate IIIc).

98 Vat. 746, fol. 35v (Lassus, "La création," 127–28, image at 128). In a miniature of James of Kokkinobaphos's homilies to the Virgin (1130–1139), the garden features the four rivers of paradise springing from a jug held by a young man (Paris, Bibliothèque Nationale de France, codex gr. 1208, fol. 50, in A. Grabar, *Byzantine Painting* [Geneva, 1953], 180).

99 Some world maps of illustrated Octateuchs are reminiscent of the world map illustrating Kosmas's *Christian Topography* (Lassus, "La création," 111–16 and 144–46, illustrations on plates IIe and IIIf).

100 On the ocean and the four rivers of paradise in the Kosmas maps, see Kominko, "New Perspectives on Paradise" (n. 29 above), 146–50.

101 This is the case for some medical miniatures as well (Bernabò, "Tre recuperi dell'antico," 10–11).

of paradise was influenced by existing iconography and by the artist's personal interpretation of the text. The rectangular shape of the map, the land beyond the ocean, and paradise are all features found on the maps of Kosmas's *Christian Topography*. A diagram of the spherical cosmos is also featured among the illustrations of Kosmas's text (see fig. 7), though one may find such diagrams in other medical compilations as well (see fig. 5). Rather than a faithful copy of Kosmas, the layout of the Bon. 3632 map is more likely inspired by the text and seems to follow the paragraphs from the first (Erythrean) sea in the south to the fourth (Black sea) in the north. The division of the oikoumene into elongated islands is unique, however. Nowhere does the text mention that these four seas cut into the land in such a way. Neither are the four gulfs of Kosmas's oikoumene, represented as circular inlets, behind such an iconography.

The contribution of other manuscripts to the question of iconography also reveals how Bon. 3632 and its illustrations are at the crossroads of two textual traditions. The islands identified on the map and the structure of the text, which includes a passage on paradise, distinguish Bon. 3632 from the other manuscripts of the textual group to which it belongs and tie this codex to another family of manuscripts, notably represented by Ambr. That the Bon. 3632 map is closely inspired by the text, but not the one copied on the verso of the map itself, suggests that the map's model—if there was any—may have been part of another illustrated version of the text that has not survived.

The existence of models for the map and the other two illustrations is further supported by the artist's approach to his work throughout the codex. Indeed, several medical miniatures are based on other models that are not necessarily reproduced faithfully. For instance, the portrayals of physicians at the beginning of the codex reproduce features of earlier models while introducing new gestures inspired by daily experience.<sup>102</sup> The "modest" quality of some of the medical "aquarelles" in Bon. 3632, according to Massimo Bernabò, also causes one to "wonder whether these images are from the hand of

a professional or rather the work of the same passionate antiquarian book hunter," an opinion echoed by Francesca Marchetti.<sup>103</sup> This assessment may apply to the miniatures of our treatise, when we remember the poor execution of the cosmographical diagram and the strange layout of the map.

The three miniatures of the treatise may be viewed independently, but the map of Bon. 3632 is more meaningful when considered along with the illustration of paradise to the east and with the cosmographical diagram that introduces the text (see fig. 1). The intervention of the scribe in the captions suggests that he was strongly involved in the arrangement and preparation of the text and the images, and supports the idea that these three images were not chosen haphazardly. Together, in a manuscript largely devoted to medicine, these illustrations situate the human microcosm analyzed and represented in the medical texts in a macrocosmic space that is at the same time cosmographical (fol. 336), geographical (fol. 338), and spiritual (fol. 337v). The analysis of other non-medical texts and of their illustrations will likely shed more light on the personality, the work, and the intentions of the scribe or his patron, as well as on the function of the text and the map in the codex as a whole.

Finally, the presence of the anonymous cosmographical text and its intriguing worldview in a variety of compilations—be they medical, astronomical, astrological, or strictly spiritual—raises some questions: what was the place of this text in Byzantine education and natural philosophy, and in what milieus did it circulate?<sup>104</sup> Only a systematic study of these other codices may explain why some manuscript owners chose to copy these curious ideas rather than the more traditional explanations about the world that circulated widely at the time.

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102 Marchetti, "Un manoscritto," 47–48. See also the case of the miniature of Julia Anicia on fol. 378v mentioned in note 14 (Bernabò, "Tre recuperi dell' antico," 10, plate 68; Marchetti, "Le illustrazioni dei testi," 84).

103 Bernabò, "Tre recuperi dell' antico," 10; Marchetti, "Un manoscritto," 58.

104 Regarding this issue, see note 11 above.